

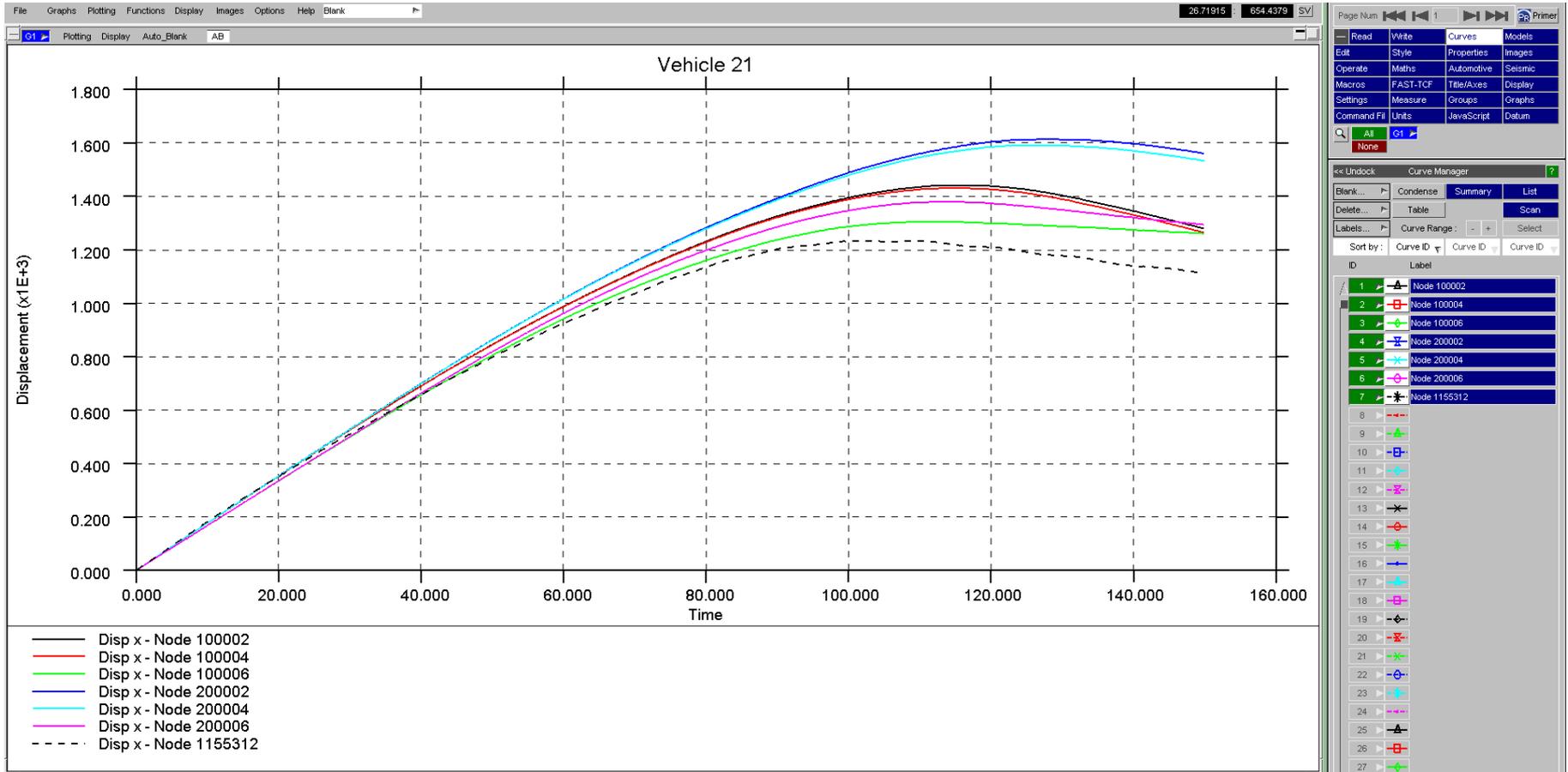
FAST - TCF

About FAST - TCF

- FAST-TCF is a scripting language for T/HIS, for use with automatic post-processing. Unlike Macros or JavaScript, the FAST-TCF input file can be automatically generated by T/HIS with a few clicks.
- A FAST-TCF script contains all of the commands to setup and position multiple graphs, read in data, perform curve operations and generate output.
- It is a quick way to reproduce plots for similar models.
- Input files can be manually edited and scripts can be recorded by T/HIS.
- It can be used in batch mode to automatically post-process results.

Creating Scripts

Creating a FAST-TCF script firstly requires creating the plot, formatting the plot as required; curve names, titles, axis, etc.



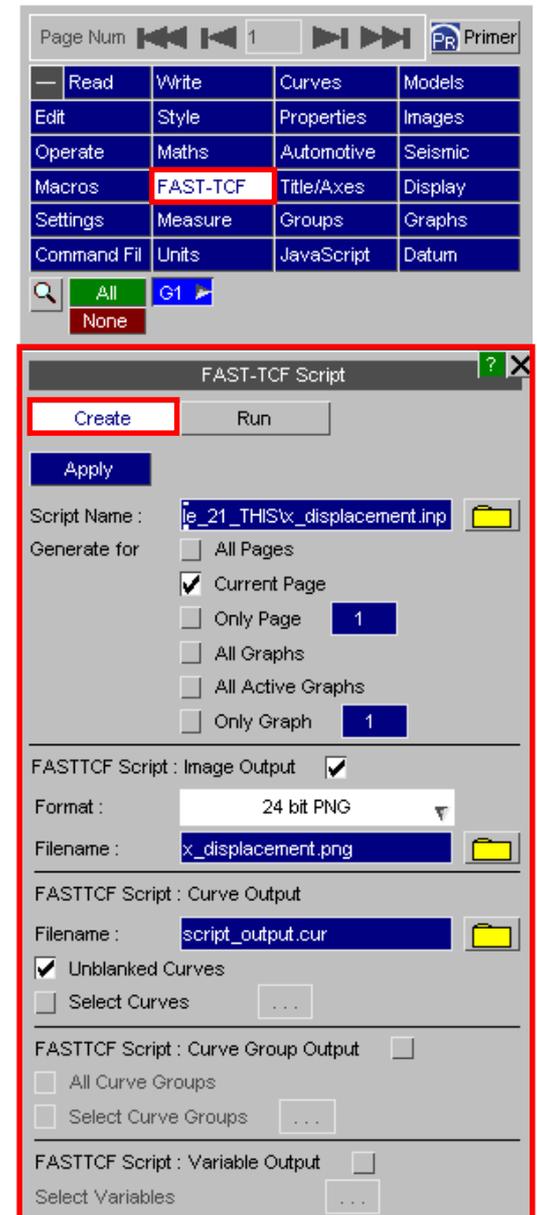
Creating Scripts

To access the FAST-TCF menu, click the 'FAST-TCF' button. Within the 'FAST-TCF Script' menu, ensure that the 'Create' menu is displayed, by clicking the 'Create' button.

Select the options required, which include; page/graph selection for the FAST-TCF script, Image Output, Curve Output, Curve Group Output and Variable Output.

The FAST-TCF script name can be entered/edited in the 'Script Name' text box and the file location can be chosen using the folder icon.

The script is saved as a *.inp file.



Play-back of Scripts

First, read in results from a model you want to play the script on.

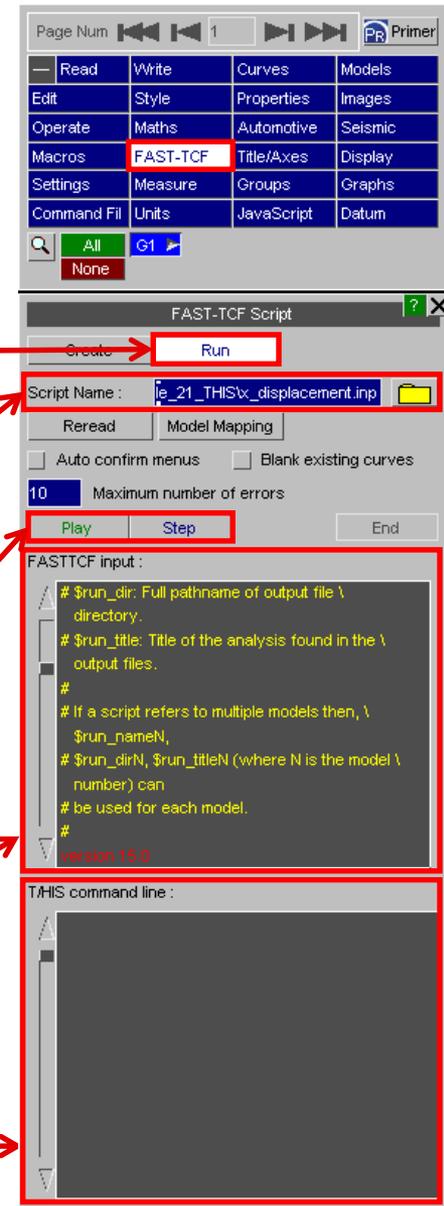
Saved scripts can be played back in the 'Run' menu within the 'FAST-TCF Script' menu. To play back FAST-TCF scripts, firstly read in a model (the model which the script is based on).

The script can be accessed by either typing in the name of the script in the 'Script Name' text box or searching for the *.inp file using the  icon.

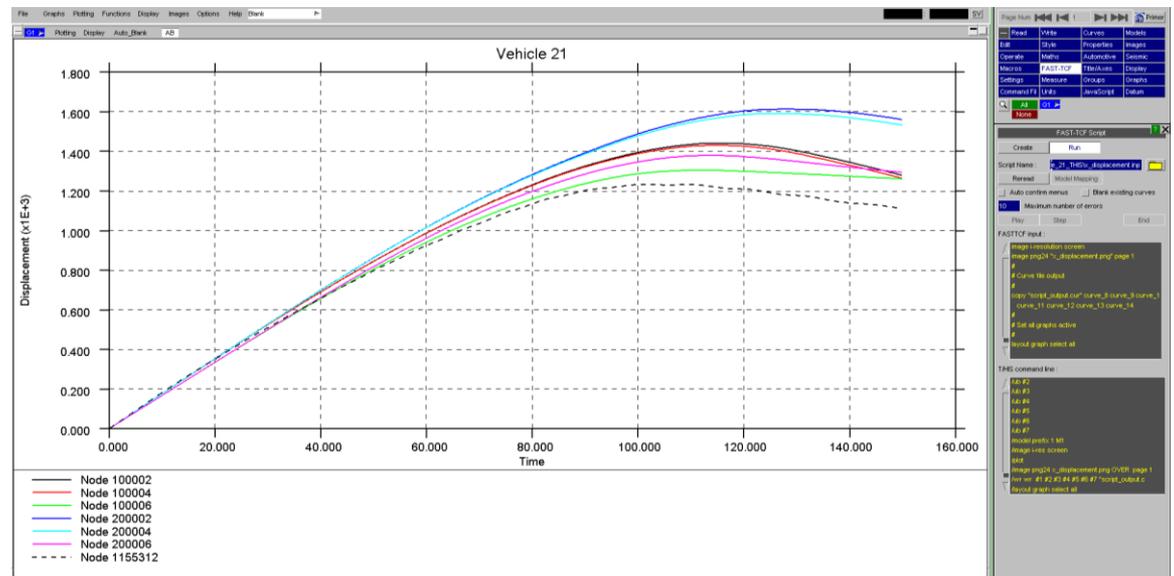
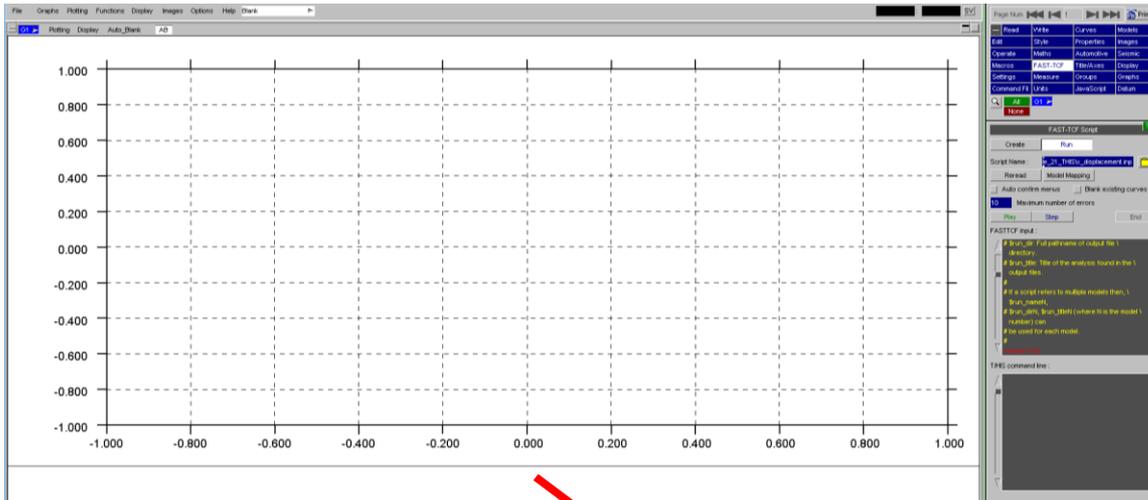
The script can be played in full or stepped through line by line.

FAST-TCF Script.

Feedback in interpreter window.

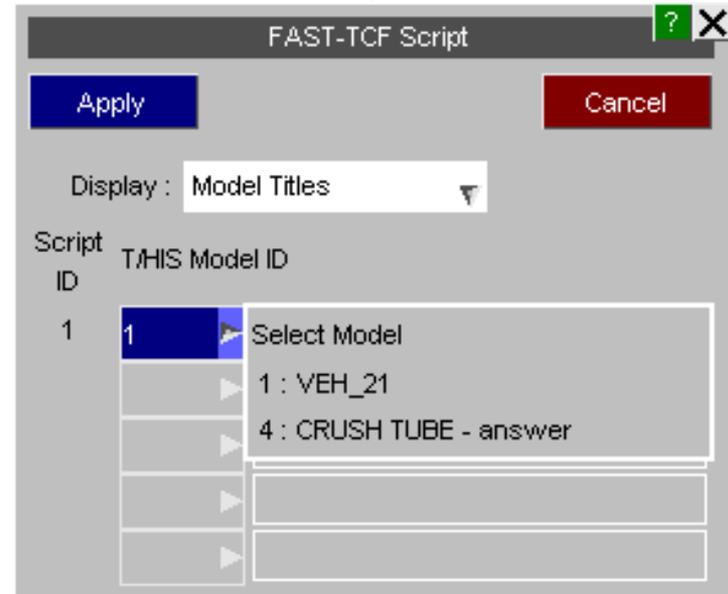
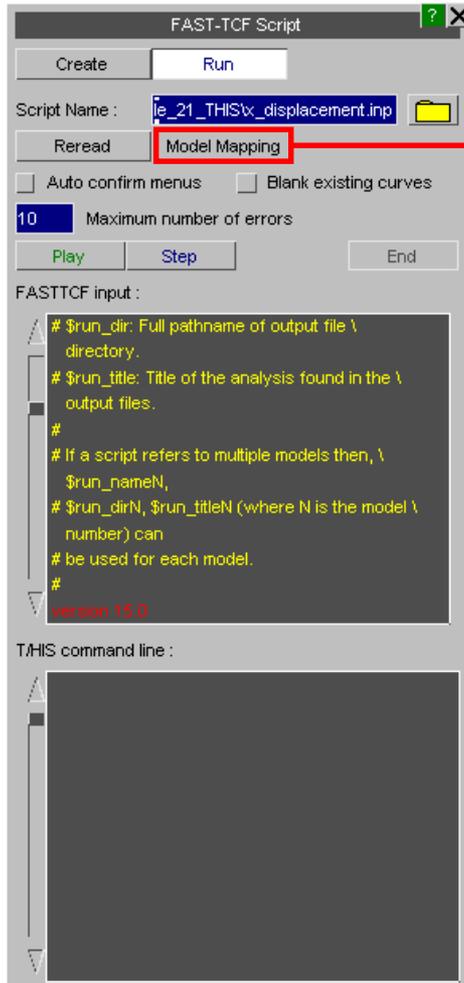


Play-back of Scripts



Play-back of Scripts – Model Mapping

If the script is used to process multiple models, the 'Model Mapping' option can be used to define which model in T/HIS corresponds to which model in the script.



FAST-TCF Scripts

- FAST-TCF supports almost 100% of T/HIS commands. All of the available commands can be found in section 7 of the T/HIS manual. Below are some common ones.
- Multiple data selection by range including tags 'first', 'last' and 'all':

eg. *sect 100:last force z_dir*

- Read data from multiple models:

eg. *Model 1* or *Model all*

- Other examples of reading multiple entities:

Node 89,90,100000 accel z tag acc z

Nodes 89, 90 and 100000. Z acceleration, all curves tagged as 'acc z'. Can be referred to in later slides.

Read & Operate on Multiple Curves

- Tags can be used to identify curves for operations. Example of curves with the same tag:

```
Sect 100:last force z_dir tag sec_fz
```

The z-force on cross sections 100 to (last) will be extracted. All curves will be given the same tag, "sec_fz".

```
Oper mul sec_fz 0.001 tag sec_fzkN
```

All curves with the tag "sec_fz" will be multiplied by 0.001; the resulting curves will all be given the same tag, "sec_fzkN".

- Use of wild-card (*) to generate and identify tags:

```
Sect 100:last force z_dir tag sec_fz*
```

The z-force on cross sections 100 to (last) will be extracted. Curves will be given tags "sec_fz1", "sec_fz2", etc.

```
Oper mul sec_fz* 0.001 tag sec_fzkN*
```

All curves with the tag "sec_fz*" (where * can be any alphanumeric characters) will be multiplied by 0.001; the resulting curves will be given tags "sec_fzkN1", "sec_fzkN2", etc.

- Using the entity ID in automatically-generated tags (## command):

```
Sect 100:last force z_dir tag sec_fz##
```

Curves will be given tags "sec_fz100", "sec_fz101", etc, according to the ID of the entity whose data is shown in the curve.

```
Oper mul sec_fz* 0.001 tag sec_fzkN##
```

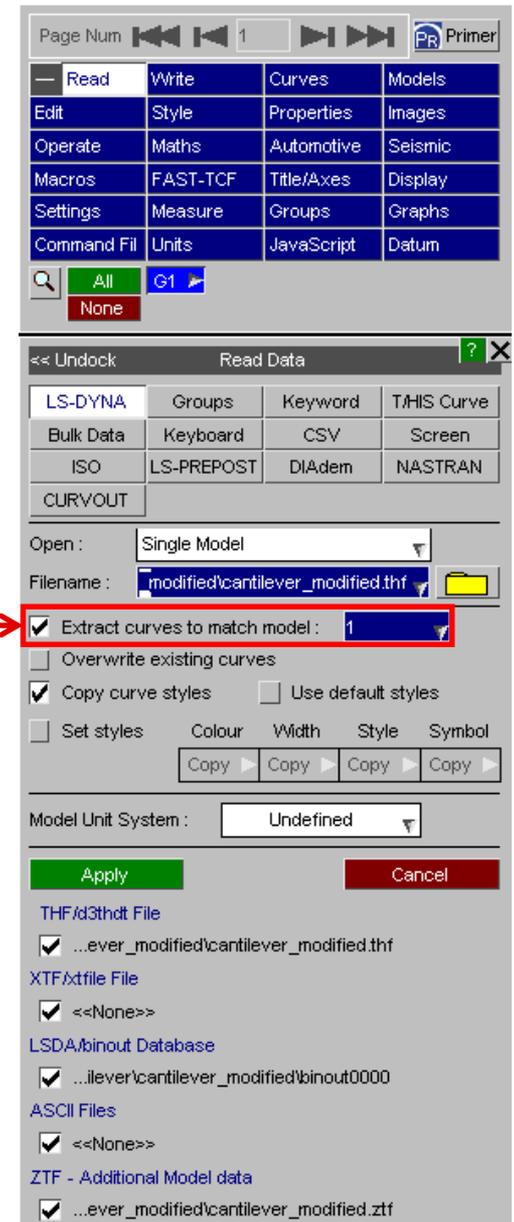
During the operation, the entity ID from the original curve (e.g. sec_fz100) will be used to form the tag of the output curve (e.g. sec_fzkN100)

Reading LS-DYNA Results

If you have read in a model and created some curves T/HIS allows the user to read a new model and repeat all previous commands, without having to record a FAST-TCF script.

This can be useful for quickly comparing different model results.

When reading in a new model, the 'Extract curves to match model' option, effectively runs a FAST-TCF script on the new model.



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